

Development and beamtest of the CALICE PFA Calorimeter Prototypes

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A highly granular electromagnetic calorimeter has been designed within the CALICE collaboration for precision measurements of Higgs and electroweak physics at future lepton collider experiments, including the Circular Electron Positron Collider (CEPC). Scintillator strips and silicon photomultipliers (SiPMs) are instrumented as sensitive layers and tungsten-copper alloy plates as absorber. Scintillator strips are individually wrapped with ESR foil and directly coupled with SiPMs. A prototype with 32 sampling layers and over 6700 channels (around $600 \times 600 \times 400$ mm³ in dimensions) has been constructed and commissioned in 2020, followed by long-term cosmic-ray tests in 2021 for quantitative studies on the key performance. There will be a dedicated beam test at CERN SPS in October 2022. This talk will cover key aspects in the prototype development, commissioning as well as selected results of cosmic ray tests. The latest status on the CERN beam test will also be presented.

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